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Off-Farm Income, Farm Structure and Rural Economies: A Policy Perspective

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The importance of the off-farm incomes of farmers has been the periodic focus of research and policy analysts (e.g. Reinsel). Most recently, the role of off-farm income in the emergence of the " dualistic agriculture" has received attention (Brooks; van Es, et. al.). The increase in the number of small farms has been related to the growth and diversification of rural economies and the broader shift among Americans toward living in the country (Committee on Agriculture). The interaction between off-farm income and small or part-time farming and the implications for agricultural policy development has brought the call for a new definition of "farm" (van Blokland).

From a policy perspective, off-farm income can be viewed from two dimensions. The first is from "within" the agricultural sector. Concern here may be for the impact of non-farm work on the structure of agriculture, on the efficient allocation of resources in farming, on producer responses to price changes, or on providing means to get a start in farming (Bateman, Walker and Jobes). The second dimension is from "without" agriculture and focuses on agriculture as one sector in rural economies with off-farm income as a linkage between agriculture and the rural economy. From this perspective, the policy concern for farmer's off-farm income may be for the stability added to total farm family income, for the resulting service demands placed on the rural public infrastructure or for the overall well-being of rural people in an area. If off-farm income stabilizes farm family income or in fact increases the level of farm family income, there should be observable evidence from within agriculture. One source of this evidence is in the changes in the value

of farmland. Expectations would be for areas with more off-farm income to experience less land value decline or maybe an earlier leveling off of farmland values during times of severe agricultural economic stress.[1] By analyzing the off-farm income of farmers and farmland value changes some evidence of the relationship between rural economic diversification and agriculture is presented.

To provide a general background, the next section presents some discussion of farmer's off-farm and its relationship to farm structure. Following this, a descriptive analysis of farmland value change and off-farm income using data from the 48 states is presented.

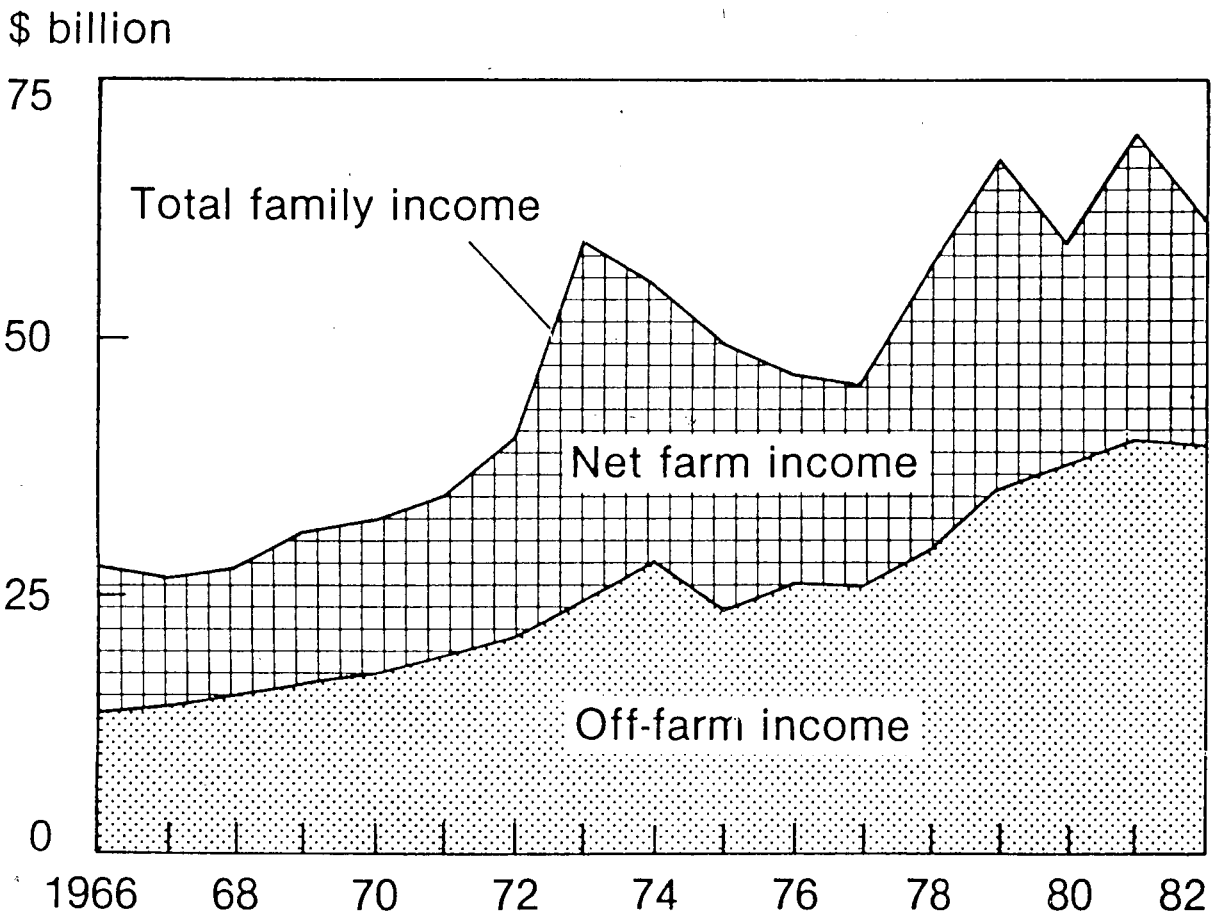
OFF-FARM INCOME

The growth in the off-farm income of U.S. farmers is shown in Figure 1. Over 50 percent of the total farm family income in the U.S. is from off-farm sources. Possible sources of off-farm income include wages and salary income, plus dividends, interest on investments, pensions, and so forth. These sources are identified in Figure 2. Certain of these sources are jointly earned by the family, such as dividends and interest while wages and salaries may be earned by the farmer, farm wife or other household member.

A major link to the local rural economy is through wages and salaries earned in a full or part-time job by farmers or farm wives. There is evidence that suggests that wages and salaries make up the majority of off-farm income (Table 1). In fact one dated Illinois study of commercial farmers reported the major source of off-farm income was farm wives working outside the home. This source accounted for 72 percent of all wage and salary income and 44 percent of total off-farm income.

Figure 1

Income of Farm Operator Families



Net farm income includes an adjustment for changes in year-end crop and livestock inventories and represents returns to operator families' labor, capital, and management.

Source: 1984 Handbook of Agricultural Charts, U.S.D.A.

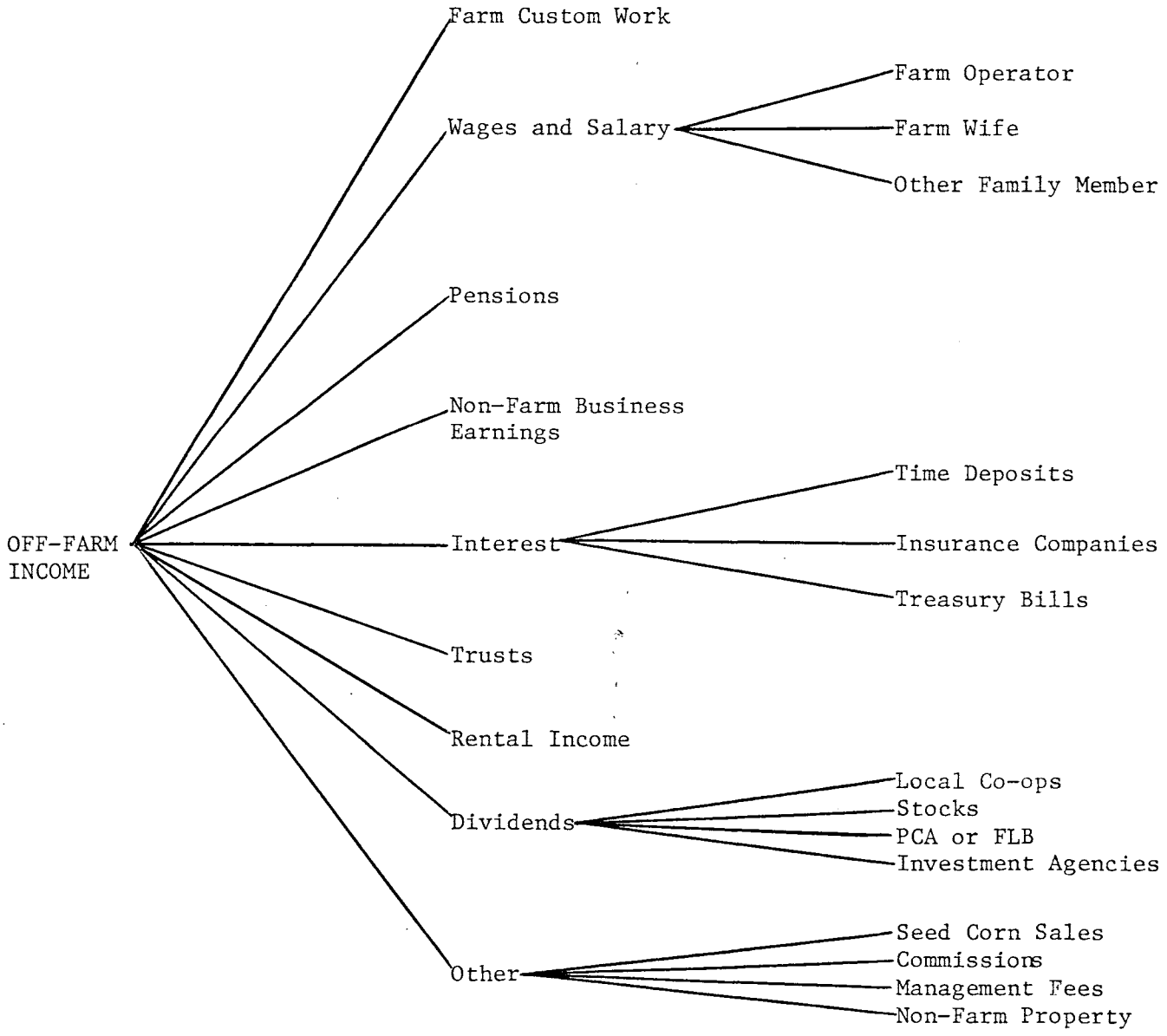


Figure 2. Possible Sources of Off-Farm Family Income

Source: Hanson and Spitæ

Table 1. Off-farm Income of Farmers

Category	Illinois Sample	National Averages 1963
Wages and Salary	61 %	65 %
Interest	9 %	7 %
Dividends	6 %	8 %
Non-Farm Business	11 %	14 %
Other	13 %	6 %

Source: Hanson, p. 4.

Farmers behavior to deal with the threat of low incomes has lead to the bimodal distribution of farm numbers - a relatively small number of large volumn commercial farms that produce a majority of the nation's output, and another category of small farms that includes a majority of the nation's farms but only a small portion of the output. Many farmers have withdrawn their labor from agriculture, either completely or partially by seeking employment off the farm. For these households, agriculture has been abandoned as the major income alternative to earn income comparable to family incomes in the remainder of the economy. Others have attempted to enhance their income position by first becoming more efficient and then by increasing the total size of the operation thus increasing the number of acres from which a return is earned. The existence of the two strategies is well illustrated in Table 2 and Table 3. Table 2 presents average farm family income by source and sales class of farm. Table 3 presents the proportion of off-farm income by farm size measured in acres for four midwest states. For smaller farms the proportion of family income derived from the farm is quite small for both approaches to measuring farm size.

The importance of off-farm income, however, is not a small or part-time farm phenomina. A 1971 Illinois study of 299 commercial farms reported off-farm

Table 2. Sources of Farm Family Income by Farm Sales Class

Value of Sales (dollars)	Average Family Net Money Income (dollars)	Average Net Farm Income (dollars)	Percent Farm Income (%)
< 50	8,650	-65	0
50 - 999	9,151	100	1.1
1,000 - 2,499	9,505	451	4.7
2,500 - 4,999	9,265	960	10.4
5,000 - 9,999	9,749	2,156	22.1
10,000 - 19,999	10,673	4,411	41.3
20,000 - 39,999	12,291	7,770	63.2
40,000 - 99,999	18,648	14,732	79.0
100,000 and plus	29,179	29,179	100.0

Source: Crecink

Table 3. Percent of Total Farm Family Income from Off-Farm Sources for Mid-West States.

	0 %				1 - 25%				25 - 49%				50 - 74%				75% or More			
Farm Size (Acres)	IL.	MN.	OH.	WI.	IL.	MN.	OH.	WI.	IL.	MN.	OH.	WI.	IL.	MN.	OH.	WI.	IL.	MN.	OH.	WI.
Less than 50	10.5	3.8	4.7	27.7	10.5	15.4	12.9	9.2	5.3	3.8	3.5	12.3	10.5	15.4	10.6	10.8	63.2	61.5	68.2	40.0
50 - 149	4.7	15.5	11.0	22.9	10.9	22.4	13.2	19.3	10.9	20.7	8.1	18.3	26.6	12.1	24.3	15.6	46.9	29.3	43.4	23.9
150 - 299	18.5	28.9	20.7	42.6	28.3	28.1	18.4	29.4	26.1	22.3	20.7	11.8	16.3	11.6	21.8	8.1	10.9	9.1	18.4	8.1
300 - 599	34.0	51.9	29.9	51.1	35.9	31.9	34.0	37.0	19.0	9.6	16.5	6.5	5.9	3.7	15.5	2.2	5.2	3.0	4.1	3.3
600 - 999	43.5	45.7	45.9	65.2	40.0	41.3	35.1	30.4	7.1	10.9	13.5	4.3	8.2	2.2	2.7	0.0	1.2	0.0	2.7	0.0
1,000 or More	35.9	41.7	55.6	61.5	46.2	52.8	16.7	15.4	10.3	0.0	22.2	23.1	7.7	2.8	0.0	0.0	0.0	2.8	5.6	0.0

Source: Rural Roads Survey, Spring, 1984

income as 20.6 percent of total farm family income (Table 4). More recent commercial Illinois farm data suggest that off-farm income is now more important to family income than in the 1970's. In 1983, 39.7 percent of total farm family income was from off-farm sources. On average, each farm which averages 601 acres in size, reported $10,937 in off-farm income and $16,627 in net family farm income. Wages and salaries were the most important source of off-farm income in 1971. No data are available for the more recent years. The change in off-farm income from 1981 to 1983, however, suggests interest income may be a more important source of income now than a decade ago. It appears, though, from the Illinois commercial farm data and the farm surveys of Illinois, Ohio, Wisconsin, and Minnesota that off-farm income, as an important source of farm family income, is not confined to smaller, non-commercial farms.

Table 4. Illinois Farm Income By Source[a]

	1971	1981	1982	1983
		Average Per Farm		
Net Farm Income	$ 8,881	$10,875	$19,540	$16,627
Non-Farm Income	$ 2,306	$ 8,747	$11,552	$10,937
Total Family Income	$11,187	$19,622	$31,092	$27,564
Percent Non-Farm	20.6%	44.6%	37.2%	39.7%
Acres Farmed	436	590	606	601

[a] 1971 data are a sample of 299 commercial Illinois farms studied by Hanson.

1981 - 1983 data are from Wilken and Cagley and are from the farm records of 4,430 commercial Illinois farms.

The development and growth of the off-farm income of farmers is very much dependent on the availability of employment near the farm. To the extent that

off-farm employment is created in rural areas, off-farm income is likely to grow. The evidence also suggests that in general, farmers in many areas are dependent on a healthy diversified rural economy. Decline in off-farm employment opportunities or a failure to grow could be more detrimental to small farms. However, the impact would be felt over most of the farm size range.

OFF-FARM INCOME GEOGRAPHY AND CHANGING LAND VALUES

The significance of off-farm income to farm families is certainly not uniform geographically in the U.S. Data on 1) percent of family farm income represented by off-farm income, 2) percent of farm operators working 200 or more days off-farm, 3) percent of farms with less than 100 acres, 4) percent rural manufacturing employment and 5) percent change in farmland values, 1983-1984, are presented by state in Table 5. The states are grouped into census regions for comparisons.

Several conclusions are evident from Table 5. First, with the exception of the energy states of Texas and Oklahoma, the importance of off-farm income to agriculture declines from east to west. Agriculture is the major rural economic base of the West North Central region where off-farm income represented 28.4 percent of farm income in South Dakota, 30.9 percent in North Dakota, 30.8 percent in Nebraska and 38.0 percent in Iowa. In contrast 84.3 percent of farm family income in New Hampshire was from off-farm sources with an 80.8 percent figure in New Jersey.

The states with a larger portion of off-farm family income tended to have a larger percent of farms in the minifarm or small/part-time size category (less than 100 acres). The large farm states generally have farm incomes more dependent on agriculture. This was expected. Somewhat unexpected, though, is the absence of a similar pattern for percent of farm operators working 200 or more days off-farm. However, the West North Central states generally had the smallest proportion of farm operators working 200 plus days off-farm. The general absence of strong observable pattern regarding off-farm operator working

Table 5. Off-Farm Income and Related Data by State

State by Census Region	% Off-Farm Income of Total Farm Family Inc. (1978)	% of Farm Op'rs Wkng. 200 + Days Off-Farm (1978)	% of Farms Less Than 100 Acres (1978)	% Rural Mfg. Emp't (1978)	% Change in Farmland Values 1983 - 84
	(1)	(2)	(3)	(4)	(5)
New England					
Maine	60.3	*	*	35.3	6.5
New Hampshire	84.3	*	*	34.8	6.5
Vermont	49.1	31.9	32.2	29.2	6.5
Massachusetts	73.1	45.7	75.7	33.0	6.5
Rhode Island	58.8	48.1	82.4	38.9	6.5
Connecticut	70.9	47.6	77.1	45.3	6.5
Middle Atlantic					
New York	49.0	38.4	43.8	33.7	3.0
New Jersey	80.8	*	*	32.8	3.0
Pennsylvania	65.0	42.1	54.0	39.5	8.0
East North Central					
Ohio	66.4	50.7	56.5	44.6	-4.1
Indiana	61.1	49.8	56.5	45.4	-0.8
Illinois	43.8	34.3	38.9	33.5	-1.7
Michigan	69.2	50.4	56.8	36.8	0.0
Wisconsin	39.3	44.7	35.6	38.2	-6.1
West North Central					
Minnesota	41.9	25.2	29.4	28.6	-7.1
Iowa	38.0	25.9	31.0	29.5	-10.7
Missouri	63.6	42.2	40.8	30.3	0.0
North Dakota	30.9	*	*	9.6	0.0
South Dakota	28.4	17.3	15.9	14.6	-2.9
Nebraska	30.8	20.2	22.9	22.3	-11.6
Kansas	54.7	43.7	25.8	23.5	-3.2
South Atlantic					
Delaware	45.4	38.4	65.5	34.0	2.1
Maryland	67.4	44.2	69.0	17.4	3.0
Virginia	73.4	45.7	60.6	31.5	-0.7
West Virginia	83.3	52.2	43.5	25.8	-2.8
North Carolina	57.1	39.4	74.8	49.9	5.3
South Carolina	68.9	46.9	66.6	48.4	-2.3
Georgia	72.3	46.1	56.9	42.6	-1.6
Florida	43.1	54.9	58.2	16.1	2.0
East South Central					
Kentucky	68.4	46.5	66.0	30.7	-4.0
Tennessee	77.2	50.6	68.9	50.3	3.1
Alabama	71.1	52.6	68.1	45.8	-1.8
Mississippi	65.6	47.7	54.5	42.5	5.2
West South Central					
Arkansas	54.7	43.5	50.0	40.9	-4.0
Louisiana	58.9	*	*	21.4	0.0
Oklahoma	71.7	48.7	35.7	24.1	0.0
Texas	63.0	49.6	40.7	22.6	8.9
Mountain					
Montana	34.9	27.7	24.7	12.7	2.1
Idaho	44.4	*	*	23.4	0.0
Wyoming	39.4	34.1	25.7	7.6	2.2
Colorado	55.5	37.9	40.1	19.8	3.1
New Mexico	56.7	44.4	45.6	8.7	2.3
Arizona	49.0	57.2	70.7	14.6	2.3
Utah	53.9	51.7	63.2	20.1	2.2
Nevada	50.3	*	*	8.7	2.1
Pacific					
Washington	51.7	49.2	73.2	27.4	3.3
Oregon	47.9	50.6	73.7	30.7	-0.7
California	40.1	49.7	88.1	18.2	0.0

* Data not available at this time.

Source: 1978 Census of Agriculture; County Business Patterns and Farm Real Estate: Outlook and Situation, U.S.D.A., May 24, 1984.

days is somewhat consistant with the evidence from Illinois commercial farms on the major contribution of working farm wives to the off-farm income of farm families.

As an incomplete measure of rural economic diversification, the percent of total rural employment represented by manufacturing is in column 4, Table 5. Not surprisingly, this crude measure of economic diversity does not present a systematic geographical pattern that is as casually observed as some of the other indicators in the table. The Mountain states, the Southwest and again the West North Central region have the lowest percentages of rural manufacturing employment.

The last column in Table 5 presents the percent change in farmland values between 1983 and 1984 as reflected in the U.S.D.A. land value indexes for the respective years. If off-farm income is a stablilizing factor and/or results in higher income levels for farmers in the aggregate, there should be a positive impact on the changes in farmland values. Thus, as off-farm income declines as a percent of farm family income from east to west, the recent economic stress in agriculture should have a greater negative impact on farmland values, other things equal.

Of course, other things are not equal. For example, the non-agricultural demand for land also declines from east to west. Therefore, any bivariate relationship observed between off-farm income and changes in farmland values will be biased and incomplete. However, the 1983 - 1984 period was not one of substancial demand for development property as high interest rates, among other things, severely retarded housing demand and new residential construction. Not controlling for non-agricultural demand differences and other factors likely impacts the magnitude of any observed relationships, not the direction.

Casual observation of the data in Table 5 provides some support for the positive relationship between off-farm income and recent farmland value change across the 48 states. The West North Central states generally experienced the

weakest farmland markets between 1983 and 1984. Recall states in this region also have farm sectors most heavily dependent on agriculture for income. Selected southern states (e.g. Texas, Mississippi, Tennessee, and North Carolina) and the Mountain region experienced strongest farmland markets outside the New England states and Washington in the Pacific region.

Further analytical evidence on the relationship between off-farm income and farmland value change is given in Table 6 which presents the correlation matrix for the variables in Table 5. The simple correlation between percent change in farmland value and percent off-farm income is .350 and significantly different from zero. Also present in Table 6 are correlations for percent change in farmland value between 1981 and 1984 and the other variables, respectively. Interestingly, the correlation coefficient for farmland value change and percent rural manufacturing employment was not statistically significant.

SUMMARY

Off-farm income is a substantial component of farm family income in the U.S. And while more important to small farms and part-time farmer's off-farm income contributes substantially to the well being of middle sized commercial farms. Wages and salaries from farm wives appear to be an important source of off-farm family income. The importance of off-farm income appears to be reflected in the movement of farmland values during the 1980's. The evidence suggests income earned off-farm has had a positive impact on the change in the value of farmland.

While the analyses and descriptions presented are suggestive, at best, and point to needed additional investigations, there is no doubt a strong agricultural sector is dependent on a healthy balanced rural economy as a source of income and economic stability. From a policy perspective, successful public programs to encourage economic diversification and revitalization in rural areas are beneficial to the farm sector by providing off-farm employment opportunities.

Table 6. Correlation Matrix

	% Off-Farm Income	%Farmers Working 200 + Days	% Farms Less Than 100 Acres	% Rural Mfg. Emp't.	% Land Value Change 1981-84	% Land Value Change 1983-84
% Off-Farm Income	1.000					
% Farmers Wkg 200 + Days	.644*	1.000				
% Farms Less Than 100 Acres	.455*	.694*	1.000			
% Rural Mfg. Emp't.	.519*	.259*	.405*	1.000		
% Land Value Change 1981-84	.239*	.279*	.283*	-.211	1.000	
% Land Value Change 1983-84	.350*	.360*	.406*	.020	.764*	1.000

* significant at .05 level, one-tailed t test.

These opportunities appear to be to the advantage of farmers wishing to combine farm and non-farm careers but also to farm spouses interested in supplementing family incomes as well as pursuing their own professional careers.

Additional research into the importance of off-farm income that provides details on sources of income, activities of farm wives, off-farm income stability, etc., would be a major contribution to the development and integration of federal rural policy that recognizes the realities of the times and doesn't treat rural development policies and farm income and price support policies as separate and distinct and possible competitors in the policy development and implementation process.

FOOTNOTES

1. It is recognized that a complicating factor in this linkage is the non-farm demand for farmland which would also exert upward pressure on land values. This demand would be expected to be correlated with off-farm employment and income earning opportunities.

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